**IT Applications Unit 3, AOS 1, Online Communities**

1. Complete the following, from pgs, 18-28: **Network hardware and software**

**Networks are classified according to below and we will study the following:**

1. **Network Categories: LAN, WAN**
2. **Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet**
3. **Network communication standards**
4. **Network hardware and software**
5. **Transmission media**
6. **Network security**

**Network hardware and software**

**Network Operating systems**

1. Describe the role of the network operating system.

The role of the network operating system (NOS) is to control traffic on the network while defining how the devices will communicate with each other

1. What are the typical tasks of network server software?

The typical tasks that the NOS carries out include those mentioned above along with building and sending packets and resolving conflicts that occur over the network.

1. What is the role of network client software?

The main role of the network client software is to initiate the connection through the network interface card, for between workstations and other connected devices.

1. List the 3 providers of network operating systems.

Novell, Microsoft windows (vista, 7, server 2008), apple

**Web client software**

1. List the typical client software

* Web browser such as IE, Mozilla, firefox, chrome, safari ect.
* Electronic mail
* Video conferencing
* IM (instant messaging)
* Chat rooms

**Software for setting up websites**

1. Describe the role of http protocol.

The HTTP (hypertext transfer protocol) is a standard useded for transmitting and receiving information on the internet, it is required to access pages written in hypertext markup language (html).

1. What is the role of web server software?

The main role of the web server software is to provide content using the http protocol usually in form of html, popular examples of this include Apache and Microsoft Internet Informtion Services (IIS).

1. What is the role of a proxy server?

The key role of a proxy server is to sit between the client and rest of the internet and substitute the users ip address for its own, cache already viewed webpages and block certain websites.

* 1. What are the advantages of using a proxy server?

There are various advantages that can be accessed via the use of a proxy server these include, being anonymous on the web, faster access to pages in the cache as well as relieving some of the pressure of the web server. Lastly the ability for it to block certain websites are also a key benefit as it can assist in lowering internet usage, congestion and cost, help protect your systems from viruses and generally ensure that the usage is appropriate and on topic.

1. Describe the role of the following software:
   1. SMTP

SMTP or (Simple Mail Transfer Protocol) is used on email servers to handle the sending and receiving of client emails, the common port for sending emails is 25. The software sees about finding out the IP address of the recipient’s mail server and forwarding on the message.

* 1. POP3

POP3 or (Post Office Protocol) is used to store the messages when the SMTP server receives it till the user logs on and the message is transferred.

* 1. FTP

FTP or File Transfer Protocol is used when uploading and downloading files between computers on the internet, this process uses port 20 for the data transfers and 21 as a control port. The process is reliant on TCP/IP.

* 1. Web software applications

Web software applications are programs that are designed to work in collaboration of the web server software on websites these include blogging software ect.

**Cross-platform web software**

1. What is meant by a Cross-platform application? List egs.

Cross platform applications are applications that have execution engines and compilers with libraries to enable the software applications to run the same no matter what machine it runs on.

1. What is adobe flash?

Adobe flash is a software tool that enables website developers to combine interactive content with text, 3d graphics and audio and video.

**Network Hardware**

Describe the characteristics and role of the following network hardware devices:

1. Network interface card

A Network interface card or NIC is connected to your computer as an expansion card or USB device to enable connections between your computer, other device or resource to a network. The NIC may do this via cables, radio waves, infra-red light waves, microwave or fibre-optic cable. Some of the most common devices that are enabled to connect via a NIC include; computers, servers, printers, scanners and fax’s and routers. Each network interface is assigned a unique number with in the network as a node. A NIC is responsible for coordinating the transmission and receipt of data, instructions and information to and from the computer.

1. Wireless access point

A wireless access point (AP) is used to connect wireless devices to a wired or wireless network often the AP being connected to a wired network to enable connection to the other side relaying data to and from. Likewise when multiple AP’s are connected to a wired network users can seamlessly move about while remaining connected as the connection transfers to a different AP when the user reaches a AP that they are authorised to use with a stronger signal this process is called roaming.

A common use of a AP is to create a hot spot which is a location where a user with a wireless enabled device is able to communicate with an AP with it commonly being used in airports, cafes, hotels ect.

1. Switches

A switch is a device that stores the address of of every device down each wire leading from the switch, then when data is transmitted it examines the destination device’s media controller access (MAC) address which is then matched with the switch map if mac addresses and corresponding switch ports with the packet then being switched to the appropriate port and sent. This process of switching allows simultaneous communications between different devices. A key time it is used is when there are multiple servers.

1. Routers

A router is a communications device that allows several remote LANs to connect over a WAN or join a number of LANs into one bigger LAN, hence it acts as a junction between networks routing the packet to the appropriate address.

1. modems

a modem (Modulator-Demodulator) is a device that may be external or internal as a card attached to the motherboard that is used to send a computer’s digital signal over a telephone line or through other transmission methods. To do this it modulates the digital data into analog compatible with the line. Common modems types include Dial-up, digital modems such as a ADSL (asymmetric digital subscriber line) that sends and receives data over a digital connection and cable modem that sends data over a cable television network.

For each of the following modem types, in a table indicate the following:

Modem download speed

i) dial up modem

56Kbps

ii) digital modems:

* + 1. DSL
    2. ADSL & ADSL 2 +

8 Mbps

20 Mbps

iii) cable modems

30 Mbps

6. How does a digital modem differ from a dial-up modem?

A key differs belongs to the fact that unlike a dial-up modem a digital modem doesn’t need to convert the signal into analog for it to travel along the line.